--13. The method of claim 11 comprising a step of rotating the lens member with respect to the imaging body such that a plurality of recess portions arranged around a circumference of the imaging body are intermittently engaged by at least one positioning protrusion formed in the lens member.--

## REMARKS

Applicant thanks the Examiner for acknowledging receipt of Applicant's foreign priority documents that have been submitted pursuant to 35 U.S.C. §119.

Applicant respectfully requests reconsideration of the rejections of claims 2, 3, 9 and 10 under 35 U.S.C. §112, second paragraph. Applicant has amended the claims in order to overcome these rejections. Applicant submits that the amended claims comport with all of the requirements of 35 U.S.C. §112, and accordingly, Applicant requests that these rejections be withdrawn.

Applicant respectfully requests reconsideration of the prior art rejection set forth by the Examiner under 35 U.S.C. §§102 and 103. Applicant respectfully submits that the prior art references of record, whether considered alone, or in combination, fail to either teach or suggest Applicant's presently claimed invention.

Applicant's claimed invention is directed to new and improved structures for securing a lens member to an imaging device. As noted in the specification, one of the shortcomings of the prior art was that it was difficult to properly secure the lens member to the body holding the imaging elements. See, for example, Applicant's specification at pages 1-2. For example, this portion of the specification notes that when a threaded section is loose (when the threaded members are not tightly secured with respect to each other), a shift is likely to occur from the focal location during bonding with an adhesive.

Therefore, as a result of this inconsistency, there may be cases where the location of the focus cannot be adjusted with the desired precision. Furthermore, in the method of securing the lens using an adhesive, the step of hardening the adhesive will typically include a step of UV illumination thereby resulting in an increased cost. The present invention has overcome the shortcomings and deficiencies of the prior art and provides new and improved structures and methods for securing a lens member to a body holding imaging elements.

In accordance with one exemplary embodiment of the present invention, an optical linkage device links a first part to a second part. The first part includes a threaded portion and may hold optical imaging elements. The second part also includes a threaded portion that mates with the threaded portion of the first part. One of the parts includes one or more positioning recesses that are formed therein. One or more positioning protrusion elements are formed in the other part to engage the positioning recesses. The positioning protrusion[s] is/are selectively engageable with the recess members.

As noted in the Applicant's specification at page 6 beginning in the second full paragraph, by screwing the threaded portion 13 to the threaded portion 22 a lens barrel 10 may be linked to a holder 20. When the threading is nearly completed, the protrusions 14 of the lens barrel 10 begin to engage recesses 23 of the holder so that a slight resistance is produced during rotation beyond this point of initial engagement between the recesses and protrusions. At this stage, the location of the focus is preferably subjected to fine adjustment. The disclosed structure allows the grip portion 12 of the lens barrel 10 to be turned bit by bit through the application of additional force in order to position the protrusions 14 of the lens barrel with respect to the recesses 23 that are preferably provided around the entire circumference of holder 20. When optimal focal location is achieved, the rotation of the grip portion is stopped and the protrusions 14 of the lens barrel 10 will be in an engaged state with respect to the recess 23 of the holder.

In this state, the protrusions will not separate from the recesses unless a very strong force is applied thereto so that the state of engagement is maintained. Applicant respectfully submits that the prior art references of record provide no teaching or suggestion regarding this advance in the art. More specifically, Applicant notes that the primary reference upon which the Examiner relies for rejecting the claims is the *Stewart* reference, United States Patent No. 1,688,441. *Stewart* discloses that a filter member which is comprised of filter elements 16b, 16g and 16r may be secured with a threaded member and that spring elements 58 may engage a groove. This reference is much different than the present invention which is directed to improved structures for securing a lens to a body holding imaging elements wherein a fine adjustment of the focus can be achieved through the incremental rotation of the lens with respect to the body during which time protrusions and recesses are respectively engaged so that additional resistance to the threading motion is provided.

Thus fine adjustment can be achieved for the position of the lens member with respect to the imaging elements. The *Stewart* reference merely teaches that a resilient member secured to a filter may engage a groove in a threaded member to prevent the filter from unintentionally unscrewing from the threaded body to which the filter is secured. The structure disclosed in *Stewart* for securing the filter provides neither teaching nor suggestion regarding the incremental focusing adjustment that can be achieved by Applicant's present invention.

Applicant further notes that those skilled in the art will appreciate that it does not matter whether there are a plurality of recess portions or positioning protrusions. All that is necessary for utilization of the invention is that there be a plurality of engagement points arranged around a circumference so that the desired benefits of achieving optimal focus can be achieved. The claims currently specify that a one-quarter revolution of the lens member with respect to the imaging body results in a plurality of said intermittent engagements

between the one or more recess portions and one or more positioning protrusions. The art of record provides no such teaching or suggestion and accordingly, Applicant requests that the Examiner now allow all claims in the application.

In light of the foregoing, Applicant respectfully requests that the Examiner now withdraw all of the claim rejections.

Respectfully submitted,

Date: October 30, 2002

(Reg. #37,607)

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## CLEAN VERSION OF CLAIMS

Sub C1

1. An optical linkage for securing a first part and a second part, the first part including a first threaded portion, and the second part including a second threaded portion that is screwable to the first threaded portion, wherein the first part and the second part may be comprised of a lens member or a body housing imaging elements, the optical linkage device comprising:

a plurality of positioning recesses that are formed around a circumference of the first part such that a plurality of said recesses are located in a one-fourth portion of the circumference; and

at least one positioning protrusion that is formed in the second part, the positioning protrusion being selectively engageable with the recess members when threading the first part onto the second part.

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2. An optical linkage device according to Claim 1, wherein the first threaded portion is an external thread, and the second part is further comprised of two or more positioning protrusions.

3. An optical linkage device according to Claim 2, wherein the second threaded portion is an internal thread.

4. An optical linkage device according to Claim 1, wherein the first part is a lens barrel.

5. An optical linkage device according to Claim 4, wherein the second part is a holder for holding the lens barrel, and further wherein an image pickup device is mounted to the holder.

6. An optical linkage device according to Claim 5, wherein, by selecting a location of engagement for the recess and the protrusion, a desired focal location between the image pickup device and the lens is achieved.

7. An optical linkage device according to Claim 5, wherein an image-forming-device focus adjustment pitch is determined at least in part by an engagement pitch between the recess and the protrusion elements.

8. An optical linkage structure for securing a first part and a second part, the first part including a first threaded portion and the second part including a second threaded portion screwable to the first threaded portion, wherein the first part and the second part may be comprised of a lens member or a body housing imaging elements, the optical linkage structure comprising:

at least one positioning recess that is formed in the first part; and

a plurality of positioning protrusions that are formed around a circumference of the second part such that a plurality of said protrusions are located in one-fourth portion of the circumference, the positioning protrusions being selectively engageable with the recess.

9. An optical linkage structure according to Claim 8, wherein the first threaded portion is an external thread.

10. An optical linkage structure according to Claim 9, wherein the threaded portion of the second part is an internal thread.

11. A method of securing a lens member to an imaging body comprising the steps of:

securing a threaded portion of a lens member to a corresponding threaded portion of an imaging body; and

rotating the lens member with respect to the imaging body such that one or more recess portions intermittently engage one or more positioning protrusions and wherein a one quarter revolution of the lens member with respect to the imaging body results in a plurality of said intermittent engagements between the one or more recess portions and one or more positioning protrusions.

12. The method of claim 11 comprising a step of rotating the lens member with respect to the imaging body such that a plurality of recess portions arranged around a circumference of the lens member are intermittently engaged by at least one positioning protrusion formed in the imaging body.

13. The method of claim 11 comprising a step of rotating the lens member with respect to the imaging body such that a plurality of recess portions arranged around a circumference of the imaging body are intermittently engaged by at least one positioning protrusion formed in the lens member.

## CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail on October 30, 2002 in an envelope addressed to:

**Box Fee Amendment**
**Commissioner For Patents**
**Washington, D.C. 20231**

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